Holyoke Community College

Sustainability Plan

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The Sustainability Plan has been reviewed and approved by Michael Giampietro, Vice President for Administration and Finance, of Holyoke Community College on April 1, 2005.

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Signature of Agency Head or other Appropriate Designee

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Agency Description and Scope

Holyoke Community College is a public two-year community college offering 91 associate degrees and 45 certificate programs. The student population is comprised primarily of commuters from the local geographic area. The College serves more than 6,200 students and employs approximately 930 full and part-time people. The College facilities also support a variety of non-academic student and community activities.

Holyoke Community College is situated on a 165-acre campus. There are eight buildings on the campus. A new building, the Kittredge Business Center is currently under construction. The gross square footage of the campus buildings, including the Kittredge Business Center, is approximately 564,000 square feet.

Seven of the campus buildings are approximately 30 years old. Their architectural appearance, structure and mechanical systems are the same. The David M. Bartley Center for Athletics and Recreation Center is approximately five years old. This building is of a different design and is equipped with more advanced and efficient mechanical systems. The new Kittredge Business Center will be completed by January 2006. Its' architectural design will compliment the buildings located adjacent to it. The Kittredge Business Center is being constructed using state of the art building finishes, mechanical systems, and technology. A unique sustainable green roof is part of the business center's construction.

The Holyoke Community College campus is located adjacent to a watershed area managed by the Holyoke Waterworks. Also, the Tannery Brook flows through the campus and is in close proximity to the campus buildings and parking lots. These environmentally sensitive areas are taken into consideration during the normal operation of the College, and during times of planning and construction. The College works closely with the Holyoke Conservation Commission relative to these areas.

Holyoke Community College Sustainability Team Members

The members of the sustainability team at present include:
Tricia Asklar, Publications Coordinator
Jared Barney, Student
Tom Jacques, Chief Power Plant Engineer
Peter Mascaro, Director of Facilities
Michelle Robak, Staff Associate Human Resources

Agency Impacts on the Environmental and Human Health

The mission of Holyoke Community College is to provide academic and related support services to more than 6,200 students on a daily basis. Obviously a large amount of natural resources are expended and a significant impact is made on the environment in order to provide these educational services.

- Approximately 7,130 people commute to the college daily. The largest percentage of these commuters uses their personal vehicles. The college has a bus stop that is on the Pioneer Valley Transit Authority (PVTA) route. PVTA is the only form of public transportation servicing the campus.

  The College owns a fleet of vans, cars, and maintenance vehicles. They are all gasoline powered with the exception of one electric utility vehicle. The fuel used by the vehicles and the emissions expelled from them have an obvious impact on the environment.

- Typical of any college or university, Holyoke Community College is a generator of a variety of wastes. These include **hazardous waste, universal waste, bio waste,** and trash associated with basic human consumption. The College has policies and procedures in place that manage hazardous and universal waste specifically. These policies and procedures are in accordance with EPA and DEP mandates and include the generation, handling, storage, and removal of hazardous waste. The College has identified central locations for the storage of hazardous and universal waste. In addition there are satellite areas for temporary storage of waste. Waste is removed at specific intervals mandated by the Department of Environmental Protection and Environment Protection Agency. The College spends approximately $17,000 on regulated waste disposal per year.

  A significant amount of paper products are consumed during the routine operation of the College. Along with paper use related to academic programs, paper is used for record keeping, report writing, and other College business. Much paper is consumed in the form of hand towels and toilet tissue, and also in the area of dining services.

  A great deal of plastic, metal, and glass in the form of beverage bottles, dining service food containers, and chemical supply containers is used by the college community.

  Equipment is constantly being updated. The disposal of recyclable and hazardous waste components of the replaced equipment is an environmental sustainability issue.

Regulatory Issues

Holyoke Community College has many regulatory issues that require attention on a periodic and annual basis. Annual air emission and source registration reports are filed with the various agencies on a routine basis. New compliance issues regarding topics such as the new storm water regulations, is an example. The College will typically spend approximately $7000 annually on consultants who assist in completing regulatory reports. This is in addition to reports and documentation that are prepared in-house.

Power Plant and Utilities

A central power plant that consists of three high-pressure boilers for heating and two absorption chillers for cooling serves the Holyoke Community College campus. The boilers produce steam for the heating and cooling of the majority of the campus. The boilers are fired using natural gas and #2 fuel oil. Natural gas is the primary fuel utilized 95% of the time by the central plant.

The central plant produces steam for heat and hot water and steam to generate chilled water. Hot water and chilled water is then distributed throughout the mechanical spaces. The hot water and chilled water is then used for the heating and cooling of the facility, and is controlled by multiple VAV fan systems located in the mechanical spaces of the College. The VAV fan systems are controlled by an Energy Management System, which automatically controls air temperatures by a central computerized direct digital control system. This system utilizes variable frequency drives to optimize energy savings by controlling the speed and on/off modes of the motors on the fans, which result in a reduction of electrical consumption.

The new Kittredge Business Center under construction will be supplied with heating and cooling from the central power plant.

The Bartley Center for Athletics and Recreation is heated and cooled with roof top units independent of the central power plant. These rooftop units use natural gas as a fuel source.

This year the Holyoke Community College facility consumed 4,203,739 **kwh of electricity** at a cost of $433,133. Fuel consumption amounted to 207,570 **ccf of natural gas** at a cost of $165,690. **Oil consumption** was 17,906 gallons, which resulted in a cost of $26,859.00.

The College uses a considerable amount of **water** for domestic use, the HVAC cooling towers, and athletic field irrigation. The City of Holyoke Water Works supplies this water. In an average year the College consumes 20 million gallons of water.

Planning, Actions, Goals, and Priorities

Power Plant Sustainability Projects:

- **Chilled water system cooling tower upgrade:** The chilled water system cooling tower consumes a lot of water. The college is presently researching the feasibility of a modification of the supply water distribution system on the tower, which will more evenly distribute the spray water onto the tower cells. This would increase their overall efficiency. The replacement of the older drift eliminators with new PVC drift eliminators is also being reviewed. This should significantly cut down on evaporation losses. These two retrofits should make the towers operate more efficiently and reduce the amount of water consumption in the system.

- **Domestic hot water production:** At this time the college is looking into adding a heat exchanger for domestic hot water that will use steam when available from the main power plant. This additional system will augment our gas- fired boiler that produces domestic hot water. This new system will help in reducing a portion of our natural gas consumption. The natural gas fired unit that currently produces domestic hot water will be replaced in the near future with a new efficient unit that will further reduce energy consumption.

- **Improved Fixtures:** The College is currently installing water saving toilets and faucets in our restroom upgrade program across campus.

- **Survey of Campus domestic water system:** During the past year, the college had an underground water leak. A pipe had split, and the only reason it was noticed was because the volume of water leaking and registering on the meters was considerable. To insure that other underground pipes are not leaking, a survey of the entire campus domestic water system will be done in the near future.

- **Energy Conserving Lighting:** A major lighting retrofit was performed when the College entered a guaranteed energy savings agreement with Honeywell in 1992. This lighting retrofit was one component of the overall energy savings contract that included the power plant energy management system and other energy savings projects. The lighting retrofit from this project and all subsequent purchases involving bulbs, ballasts and fluorescent lights, consistently incorporates new energy conserving lighting technology.

The HCC Recycling Program:

- **Member of the Recycling Network**: This is a cooperative organization that improves the financial and operating results for recycling programs at colleges and universities, hospitals, nursing homes, private schools, and similar institutions.

- **Recycling equipment:** Most electronic equipment that has been deemed worthless because it is either damaged beyond repair, or obsolete, is disposed of through the Recycling Network. This insures that the components of the equipment are recycled and disposed of properly. Florescent light tubes are also disposed of through the Network.

- **Scrap yard recycling:** Large metal items such as office and classroom furniture, refrigerators, and lab equipment that have been deemed worthless are trucked to the local scrap yard for recycling.

- **Confidential white paper recycling:** Confidential white paper documents are discarded into a locked Dumpster, which is periodically trucked to a recycling waste station.

- **Cardboard recycling:** Cardboard boxes and packing materials that have been discarded are broken down and put in a separate dumpster, picked up biweekly then trucked to a recycling waste station.

- **Clean paper collection & recycling:** All clean paper is collected in recycle baskets in offices, and corridors. These baskets are emptied into large blue bins that are located on the second floors of both Frost and Donahue buildings. These large bins are moved outdoors by HCC maintainers. The Holyoke Department of Public Works empties the bins twice a week and trucks the waste to a recycling station.
  Goal: Increase the quantity of paper processed by re-enforcing existing recycling policies, and increasing the recycling efforts made by all members of the campus community.

HCC Policies that have a positive impact on lowering the Waste Stream:

- The College makes every effort to use recycled paper for printing and copying.

- All paper towels toilet paper and cardboard that is used throughout the campus is made from recycled paper.

- In the near future, the College expects to adopt a workable recycling program for bottles and cans. At this time staffing and recycling staging space is not available for this purpose. An effort is being made by volunteers to collect and recycle these items, but the quantity that is being processed is not known at this time.
  Goal: Increase staffing and introduce a workable approach to plastic, metal, and glass container recycling

- The current Food Service agreement between Fame and the College has environmental considerations in it. It states that the contractor shall make a good faith effort to use paper products with recycled content. Styrofoam products should not be used on campus. The contractor offers a discounted price when customers purchase beverages using refillable cups available for purchase from the contractor. Where appropriate, the contractor purchases products in bulk or concentrate form. China dishware and silverware is used in place of disposable products for serving hot entrees and other items, as appropriate.
  Goal: Provide direction over food service vendor to insure that contractual recycling obligations are met.

Quantities of discarded electronic equipment and light bulbs that HCC processes through the Recycling Network:

- Discarded electronic equipment recycled annually = approximately 4800 lbs. = 2.4 tons
- Discarded florescent light tubes recycled annually = approximately 2400 lbs. = 1.2 tons

Quantities of Paper and Cardboard that HCC Currently Recycles:

- The college community fills 24 recycle bins that are picked up regularly twice a week by the City of Holyoke DPW. Each bin contains approximately 100 pounds of mixed paper and cardboard.

  Total approximate annual weight all bins = 156,000 lbs. = 78 tons

- There is an eight yard cardboard recycling Dumpster in the rear parking area of G building. It contains approximately 2,000 pounds of cardboard about every two weeks.

  Total approximate annual weight = 52,000 lbs. = 26 tons

- There is a 20-yard confidential white paper container adjacent to the G building loading dock. This Dumpster is emptied about once a year, and contains about 10,000 lbs. of paper.

  Total approximate annual weight = 10,000. lbs. = 5 tons

  Total annual paper and cardboard recycled = 218,000 lbs. = 109 tons

Holyoke Community College Rideshare Program:

HCC complies with both the regulations and spirit of the Massachusetts Rideshare Program. The College has aggressively promoted the use of alternative commute modes (carpooling, vanpooling, the use of transit, bicycling and walking) to the campus since 2002. The College also provides preferential parking, a semester transit pass to students, distributes transit schedules and other transportation-related information, and collaborates with MassRIDES (the state rideshare vendor). Ride matching services are coordinated through the MassRIDES database. To further promote options, the College may participate in the MassRIDES Commuter Incentive Program scheduled to start in 2005, which will offer cash or gift rewards to drive-alone commuters who switch to an alternative.

In addition, HCC uses other non-traditional alternatives, which eliminate vehicle trips from area roadways. According to the survey, those who were on a variable work schedule, telecommuted or had a scheduled day off accounted for 9.4 % daily – eliminating approximately 385 round trips per week, or more than 25,000 trips annually (based on 36 weeks). Also, HCC offers "distance learning classes" for its students, using multiple formats including home-study courses, Web courses, and telecourses, which enable the College to reduce trips to and from the campus substantially. As result of the College's implementation of programs and incentives, **the number of Drive-Alone Commuter Trips (DACTs) was reduced by 2,087 trips since its Base Report.** The commuter alternatives that faculty, staff and students, include ridesharing, (accounting for more than 8 % of the commuters) and transit (representing almost 5 % of the commuters).

Rideshare Summary:

HCC Collected applicable commuter data using the random sample technique and achieved a response rate of 100 percent. The survey results show that the C**ollege has a SOCV rate of 74.5 percent.** This is an improvement from the base year and has resulted in the reduction of 2,087 drive-alone trips.

HCC remains in compliance with the Massachusetts Rideshare Regulation and will continue to take reasonable steps to reduce its SOCV rate in the future. As explained in this report, HCC offers a number of successful strategies to steer employees and students into alternatives, which have already proven to discourage drive-alone trips to the campus. Through this ongoing commitment, HCC plans to increase its efforts, wherever feasible, such as working in cooperation with MassRIDES. However, because access to public transportation is limited, only incremental reductions in drive-alone trips may be achieved in the future.

Management Systems and Institutionalization

The overall planning process utilized by Holyoke Community College to implement and achieve the goals related to the mission of the institution includes the entire College community. Integrating decisions relative to environmental impacts and sustainability into this process will be accomplished in various ways.

The current sustainability team is comprised of people who have an active role in the daily and future decision-making and implementation process. Team members are also involved with the dissemination of information regarding the sustainability efforts, and the education and training of the campus community pertaining to these efforts. In the future, this team will evolve to incorporate more people from other campus departments and programs. This team will be the information gathering and formal reporting mechanism for the sustainability plan. Responsible individuals within departments and programs will be informed through various campus publications, email, and newsletters about the sustainability plan. They will be asked to incorporate issues relative to sustainability into their planning and operations. A means by which these members of the College community can measure and report their progress will be developed.

Agency Sustainability Workplan Worksheet

Increase the paper and cardboard recycling effort. *Pages 4,5*	Waste reduction Cost savings	Re-educate campus community about the program and upgrade and increase the amount of recycle bins	Facilities, Public Relations	January 2006
Increase the plastic, glass, and metal recycling effort. *Page 5*	Waste reduction Cost Savings	Increase staffing and introduce a workable approach to container recycling.	Facilities, Public Relations	January 2006
Reduce water consumption *Page 3*	Save water	- Modify the water distribution system on the chiller towers -Install water saving devices on toilets and faucets in restrooms	Facilities, Engineering	September 2005 September 2005
Upgrade domestic hot water system *Page 3*	Energy and cost savings	- Replace old, inefficient, hot water heater. - Install heat exchanger in steam system to augment existing hot water heater	Facilities	July 2006 September 2005
Upgrade restroom lighting *Page 4*	Energy and cost savings	Retro-fit existing light fixtures with energy efficient fixtures	Facilities	September 2005
Increase carpooling *Page 6*	Energy savings Reduce emissions	Increase publicity, provide information and relative resources to encourage carpooling	Public Relations, Student Services, Human Resources	Ongoing (Annual Massride Report will measure progress)
Upgrade campus vehicles	Energy savings Cost savings Reduce emissions	Replace retiring fleet vehicles with hybrid, electric, or more fuel efficient vehicles	Administration, Facilities, Student Services	Ongoing
Domestic water underground leak detection *Page 4*	Water saving Cost savings	Survey entire campus underground domestic water piping system	Facilities	July 2006
Electricity and natural gas reduction	Energy saving Cost Savings	Investigate and incorporate into construction and normal plant operation alternative sources of energy such as solar and wind power.	Administration, Facilities Campus Community	Ongoing